

Pseudochloris roraimæ, sp. n.

Adult male. Crown of head dark citron-yellow, with an indication of dark shaft-lines to the feathers; wings and back blackish brown with olive-grey margins to the feathers; rump and upper tail-coverts dark olive-green; tail blackish brown fringed with olive-green; the two outer feathers on each side white on the inner webs at the tips; sides of face tawny yellow; throat, breast, and abdomen dull yellow, darker on the sides of the body and paler on the under tail-coverts; under wing-coverts buff; under surface of flight-quills dark brown; lower aspect of tail similar to its upper surface, but paler brown.

Total length 116 mm.; exposed culmen 8; wing 63; tail 44.

Adult female. Differs from the adult male in being blackish on the upper surface, with pale fringes to the feathers; throat, breast, and sides of body fawn-brown, with dark shaft-lines to the feathers, becoming whitish yellow on the lower abdomen and under tail-coverts. Wing 58 mm.

Hab. Mount Roraima, British Guiana.

The types, which are in the British Museum, were collected by the late Henry Whitely at Mount Roraima, November 20, 1883. Salvin-Godman Collection.

This species was quoted by Brabourne and Chubb in their 'List of the Birds of South America' as *Pseudochloris browni* (Bangs), but it differs from that species, however, in its smaller size and much duller coloration. There is a series of twelve specimens of this species in the British Museum, all of which are quite constant in character.

XXIV.—*Paraonyx*, a new Genus of Clawless Otter discovered by Capt. J. E. Philipps, M.C., in Central Africa. By MARTIN A. C. HINTON.

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DURING the past year Captain J. E. Philipps, M.C., the District Commissioner at Kigezi, British Ruanda, has diligently collected the larger mammals of his district, and has presented many valuable specimens to the British Museum. Among his most recent donations are two females

of a peculiar clawless otter, which presents such a remarkable combination of characters that it must be described as belonging to a new genus.

PARAONYX, gen. nov.

Like *Aonyx* externally, but with shorter and thinner fur. Facial vibrissæ weakly (instead of strongly) developed, the superciliary and upper genal tufts absent. Nose-pad and ears as in *Aonyx*. Hands small, with five quite naked and clawless digits, unwebbed. Feet with five digits, of which the third and fourth alone bear minute vestigial claws, with small webs inserted at the base of the second phalange of each digit; upper surfaces of toes, from a little above the insertions of the webs, almost naked, bearing merely a few scattered, short, and quite inconspicuous hairs. Palms and soles entirely naked, the pads agreeing with those of *Aonyx*. Tail as in the latter genus. Coloration characterized by a peculiar frosting of the whole upper surface of the head and neck, extending backwards to the shoulders; this frosting is produced by the longer hairs, most of them having, in the regions mentioned, long silvery tips. A sharply defined rhombic patch of dusky hue present on each side of the muzzle between the eye and the postero-lateral corner of the nose-pad.

Skull only distinguishable from that of *Aonyx* by the unusually short and broad interdental portion of the palate. Mandible less robust than in *Aonyx*, with the symphysial portion shorter and rather abruptly truncated.

Dental formula normal:—I. $\frac{3}{3}$, C. $\frac{1}{1}$, P. $\frac{4}{3}$, M. $\frac{1}{2}$; $\overline{p.1}$ shed in old age.

Incisors and canines about as in *Aonyx*, but $\overline{i.1}$ a little less reduced and $\overline{i.2}$ still more completely in series. Cheek-teeth wholly unlike those of *Aonyx*, being remarkably small and weak (relatively smaller than in *Lutra*), brachyodont and narrow, lacking all trace of specialization for crushing (as seen in *Aonyx*) or for devouring a diet of fish (as seen in *Lutra*). The anterior upper and the lower premolars like those of *Aonyx* in general form; $\overline{p.4}$, $\overline{m.1}$, and $\overline{m.1}$ with the cusps usually found in Lutrinæ; $\overline{p.4}$ and $\overline{m.1}$ in broad contact with each other, their inner lobes much less developed than in *Aonyx*, the difference being especially noticeable in $\overline{m.1}$, where the heel is very small and the cingulum, winding round the base of the low protocone, very weak. In $\overline{m.1}$ the

three chief cusps are low, subequal in height, and rising comparatively little above the talon ; the latter is not expanded, as in *Aonyx*, but is about as wide as in *Lutra*, while the cingulum on its outer side is represented merely by a feeble crenulation. $\overline{m.2}$ is little larger than in *Lutra*, of square or rounded form, and totally different in shape and appearance from that of *Aonyx*.

Hab. Central Africa and the Lower Congo.

Genotype : *P. philippsi*, sp. n., Central Africa.

Other species : *P. congica*, Lönnberg, Lower Congo.

1. *Paraonyx philippsi*, sp. n.

Size about as in *Aonyx capensis hindei*. General colour of upper parts dark chocolate-brown (almost black), conspicuously frosted from the top of the head to about the level of the shoulders by the silvery tips of most of the longer hairs. Throughout the back to the root of the tail many of the longer hairs are similarly tipped with silver, but such hair-tips are neither sufficiently numerous nor sufficiently long to produce more than a distinct and regular peppering upon the dark ground-colour. Head and neck with a definite pattern. A broad and in places well-defined median stripe passes backwards from the edge of the rhinarium to terminate a little in advance of the level of the bases of the ears. Midway between eyes and ears this stripe broadens, a short, faint, laterally directed branch leaving it on each side. Anteriorly, from nose-pad to eyes, the stripe is light clear yellowish-brown in colour, but behind the eyes it is dark brown ticked with dirty white. A large, sharply defined, rhombic patch of dark chocolate colour occurs on each side of the muzzle, occupying the whole distance between the eye and the nose-pad, and being bounded mesially by the median stripe and laterally by the seat of the mystacial bristles. Above each eye is a large whitish patch, bounded mesially by the median stripe and anteriorly by the postero-internal border of the dark preorbital patch. From the posterior canthus of the eye a faint and imperfectly continuous dusky streak passes back towards the base of the ear on each side. The ears are dusky, with conspicuous white borders. The lips, chin, and throat are white as in *Aonyx*, the white extending upwards for some little distance in front of the shoulders, and being quite as regularly and sharply separated from the darker dorsal tints as in that genus, although the contrast is greatly weakened by the silvery frosting of the head and shoulders previously

Skull-measurements in millimetres and reductions.

	Paronyx philippisi.			congica (Lönn.).	Aonyx c. hindoi.		Reductions:—			
	Type.		♀ type.	♀, aged.	♂ type.		Paraonyx philippisi.		Aonyx c. hindoi.	
	♀ type.	♀, aged.			♀ type.	♀, aged.	♀.	♂ type.		
									9	29
1. Condyllo-basal length	121	116.5	..	126.5	123.7	126.7	100	100	100	100
2. Occipito-nasal length	106.9	111	..	126.5	112.8	113.8	88.5	95.5	91.5	90
3. Zygomatic breadth	..	84.7	..	..	88.3	94	..	73	71.5	74.2
4. Interorbital breadth	28.7	26.2	..	28	26.5	29.2	23.8	22.5	21.4	23
5. Cranial breadth	69.3	72.1	..	71	70.1	72	57.5	62	56.6	56.9
6. Mastoid breadth	86.7	83.5	..	..	84.8	86.3	71.7	72	68.5	68
7. Height of occiput (median)	44.5	46.3	..	..	43.5	45.4	36.8	39.8	35.1	35.8
8. Width across canines	32.6	..	..	..	32.1	34	27	..	25.9	26.8
9. Intermolar breadth of palate between m_1 — m_1	19.4	16.5	..	..	13	15	16	14.2	10.6	11.8
10. Palatal length	55	54	..	..	60.4	62.9	45.5	46.4	48.9	49.6
11. Canine to m_1	35	35.5	..	..	42.2	44.3	29	30.5	34.1	35
12. P_4 to m_1	15.5	16.3	..	..	21.9	23	12.8	14	17.7	18.1
13. Mandible, condyle to front edge of i_1	80	78	..	..	82.5	87.5	66	67	66.5	69.2
14. Canine to m_2	41	42.9	..	..	50.2	54	33.9	36.8	40.6	42.6
15. P_2 to m_2	31.5	..	..	40	39.3	..	26	..	31.8	..

described. Underparts from the chest backwards, together with the tail and hind limbs, dark brown, scarcely lighter in tint than the rump—not peppered with silver, but mottled by the partially visible whitish underfur. Fore limbs and hands rather paler than legs and feet.

The comparatively short and thin fur is soft. It becomes very thin and short upon the forearm, the under surface of which appears nearly bare, while the backs of the hands and wrists are but scantily clad, the fingers being, as already mentioned, quite naked. This local thinning-out and disappearance of the fur may be due to excessive abrasion arising from what I believe to be the comparatively terrestrial habits of the genus, and not to a natural deficiency. The hind limbs are better clothed, but the covering is much shorter and thinner than in *Aonyx*; on the upper surface the fur extends to the bases of the digits, ending off on each toe a little above the point at which the web is inserted.

Skull and dentition as described above for the genus. Besides the characters already mentioned, the skull differs from that of *A. c. hindei* in having the mastoid breadth distinctly, the cranial width and height slightly, greater in proportion to the length. The remarkable weakness of the dentition is well brought out in the comparative measurements given at p. 197.

Measurements of type taken on the skin:—Head and body 350 mm.; tail 480. For cranial and dental measurements see table.

Hab. S.W. Lake Bunyonyi, British Ruanda (long. 29° 50' E., lat. 1° 20' S.).

Type. Adult female. B.M. no. 21. 1. 22. 1. Collected about August 1920, and presented to the British Museum by Capt. J. E. Philipps. An aged female* from the same locality also examined.

2. *Paraonyx congica*, Lönnberg.

1910. *Aonyx capensis congica*, Lönnberg, Ark. f. Zool. vii. no. 9, p. 1; described from the Lower Congo.

Lönnberg's full description and excellent figures of the dentition leave no room for doubting that this interesting

* As Dr. F. Corner pointed out to me, this individual received and recovered from a remarkable injury during its life. The right canine has been torn out from the upper jaw, the maxilla fractured and subsequently repaired.

animal is really a second species of *Paraonyx*. In dentition, as in all essential external characters, it agrees completely with *P. philippsi*, being distinguishable from the latter only by its considerably greater size, coarser fur, and rather lighter colour (paler instead of darker than in *Aonyx c. hindei*).

Dental measurements (in millimetres).

	<i>Paraonyx</i>			<i>Aonyx c. hindei</i> .	
	<i>philippsi</i> .		<i>congica</i> .		
	♀ type.	♀, aged.		♀.	♂ type.
$P.^4$ length $\times$ breadth. .	9.1 $\times$ 10.5	9.6 $\times$ 10.5	11 $\times$ 10.5	12 $\times$ 13.1	13.5 $\times$ 15.1
$m.^1$ " " "	7.1 $\times$ 8.7	7.8 $\times$ 9.5	..	11 $\times$ 14.6	11.7 $\times$ 15.8
$m.^1$ " " "	11.5 $\times$ 6.3	11.5 $\times$ 6.2	15.3 $\times$ 8.5	16.2 $\times$ 10.4	17.6 $\times$ 11.6
" height (cusp 4) ..	4.7	..	..	7.3	..
$m.^2$ length $\times$ breadth .	4.5 $\times$ 5.2	3.7 $\times$ 5	5.7 $\times$ 6.5	5.5 $\times$ 7.9	..

Nothing is yet known of the habits of these remarkable otters. *Aonyx* itself is, however, known to be less strictly aquatic than is *Lutra*; it is not often able to procure fish, and crabs form its staple diet, water-birds, eggs, lizards, frogs, and toads also being frequently devoured. I believe that *Paraonyx* will be found to possess still more terrestrial habits than those of *Aonyx*, an idea which forced itself also upon Lönnberg when describing the hands and feet of *P. congica*. Besides the features alluded to by Lönnberg, one may cite in support of such a view the degeneration of the facial vibrissæ, the thinness of the pelage, the nakedness (be it natural or due to excessive abrasion) of the fore limbs, and the frosting of the head and shoulders. The latter character may be regarded, perhaps, as the beginning of a change in the colour-scheme leading towards the condition seen in the ratel and many other terrestrial carnivores. More important than all, the low crowns, blunt cusps, and the interdental relations of the three principal cheek-teeth ($P.^4$, $m.^1$) of *Paraonyx* suggest that it does not engage in the active pursuit of fishes; and the lightness and delicacy of these teeth seem to forbid the supposition that it feeds, like *Aonyx*, chiefly on crabs. I suspect that the staple diet will be found to consist of soft substances like small terrestrial vertebrates and eggs.

It is not easy to form an opinion as to the inter-relation-

ships of the three genera of clawless otters now known; in the course of their evolution they seem to have followed paths in part parallel and in part divergent. It is still more difficult to decide whether *Paraonyx*, *Aonyx*, and *Micraonyx*, together with the extinct *Enhydriodon* and the living *Latax*, are retrograde developments from active fish-catching ancestors rather than the terminations of so many progressive lines leading from forms at least as generalized as the Tertiary *Potamotherium*. Forsyth Major (Zool. Anz. 1897, p. 138) sees in *Aonyx*, *Micraonyx*, and *Enhydriodon* "phylogenetisch ältere Formen"; but Winge ('Rovdyr fra Lagoa Santa,' 1895, p. 69) suggests a retrograde development from forms resembling *Lutra*. Personally I incline to the latter view as regards the clawless otters; for in the broader details of their structure they are all as much otters as is *Lutra* itself, and it is difficult to account for such essential agreement except upon the supposition that the three clawless genera have passed through similar free-swimming fish-catching stages of development. The differences between them and *Lutra* are correlated apparently with slight differences of habit and environment; while forming strong pegs for the systematist to hang his classification of numerous forms upon, these differences are in themselves small things of possibly little basic significance. One point in this connection may be specially mentioned. In *Potamotherium* and *Lutra*, as in many other carnivores, $p.4$ and $m.1$ are only in contact by their external angles, a large space is left vacant between them lingually; into that interdental space bite the two chief cusps (4 and 2 of Winge's numeration) of the lower carnassial. In the three clawless genera, as well as in *Enhydriodon* and *Latax*, $p.4$ and $m.1$ are in full contact, and there is no lingual interdental space; the inner lobes of the upper teeth are so greatly developed that all the cusps of $m.1$ bite on to hard tooth instead of on to soft gum—an obvious adaptation, be it progressive or retrogressive, for crushing the shells of molluscs and crustaceans. This adaptation is clearly much older and more perfect in *Latax* than in any clawless otter; and therefore it is not surprising to find the characters of $p.4$ and $m.1$ not merely foreshadowed but practically perfected in their representatives of the milk-dentition $dp.3$ and $dp.4$ (figured by Leche, Zool. Jahrb. 1915, p. 342). But in *Aonyx* and *Micraonyx* $dp.3$ and $dp.4$ are totally different from their permanent representatives in form, showing a wide lingual interspace, which receives the chief cusps of $dp.4$; the milk-dentition in these forms still remains faithful to the type exhibited by the Tertiary *Potamotherium*.